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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/607,934	06/27/2003	H. Peter Anvin	TRAN-P205	8656

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EXAMINER	
KRAVETS, LEONID	
ART UNIT	**PAPER NUMBER**
2189	

DATE MAILED: 08/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/607,934	ANVIN, H. PETER	
	Examiner	Art Unit	
	Leonid Kravets	2189	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *three* MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 June 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *1-3,5-10,12-17 and 19-21* is/are rejected.

7)☐ Claim(s) *4, 11, 18* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 March 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 310 (page 11, line 12) and 610 (page 16, line 11). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. Applicant is required to submit a proposed drawing correction in response to this office action. However, formal correction of the noted defects can be deferred until the application is allowed by the examiner.

Specification

3. The disclosure is objected to because of the following informalities: "host operates system" (page 7, line 16) should be corrected to "host operating system". "different respective operating systems" (page 1, line 19) should be corrected.

Appropriate correction is required.

4. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear from the specification what is meant by "host machine context" and "virtual machine context". It is also unclear from the specification what is meant by "context identifiers".

7. Claims 1-21 are further rejected because they recite the limitation "logically combining memory protection bits". There is unclear antecedent basis for this limitation

in the claim. The protection bits must be stated prior to this limitation. Furthermore, the scope of "logically combining" is unclear. This could mean any one of a Boolean operation, storage in the same memory line, hashing, concatenating, etc.

Claim Rejections - 35 USC § 102

8. Examiner applies the following guideline from the MPEP in applying prior art to the claims. A claim limitation which is considered indefinite cannot be disregarded. If a claim is subject to more than one interpretation, at least one of which would render the claim unpatentable over the prior art, the examiner should reject the claim as indefinite under 35 U.S.C. 112, second paragraph (see MPEP § 706.03(d)) and should reject the claim over the prior art based on the interpretation of the claim that renders the prior art applicable. Ex parte Ionescu, 222 USPQ 537 (Bd. Pat. App. & Inter. 1984) (Claims on appeal were rejected on indefiniteness grounds only; the rejection was reversed and the case remanded to the examiner for consideration of pertinent prior art.). Compare In re Wilson, 424 F.2d 1382, 165 USPQ 494 (CCPA 1970) (if no reasonably definite meaning can be ascribed to certain claim language, the claim is indefinite, not obvious) and In re Steele, 305 F.2d 859,134 USPQ 292 (CCPA 1962) (it is improper to rely on speculative assumptions regarding the meaning of a claim and then base a rejection under 35 U.S.C. 103 on these assumptions).

9. As per claims 6, 13, 20, applying the decision of In re Wilson, no prior art can be applied to the claim due to the indefinite language of the claim.

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

11. Claims 1- 3, 5, 8-10, 12, 15-17, and 19 are rejected under 35 U.S.C. 102(e) as being anticipated by Uhlig et al, (U.S. PG Pub, 2004/0117593).

Uhlig teaches the claimed invention, a method for providing hardware support for memory protection and virtual memory address translation for a virtual machine (Page 3, Paragraph 27, lines 2-6), comprising:

executing a host machine application within a host machine context (Page 2, Paragraph 14, lines 3-6);

executing a virtual machine application within a virtual machine context (Page 2, Paragraph 17, lines 5-7);

storing a plurality of TLB entries for the virtual machine context and the host machine context within a TLB (Page 3, Paragraph 24, lines 6-9); and

logically combining memory protection bits for the plurality of TLB entries to enforce memory protection on the virtual machine application (Page 3, Paragraph 27, lines 3-7, Page 5, Paragraph 46, lines 1-6; Examiner gives the claim "logically combining" the broadest reasonable interpretation. Thus, the reference logically combines the memory protection bits into combinations).

As per claim 2, Uhlig teaches the method of claim 1, wherein at least one of the memory protection bits is a dirty bit (Page 5, Paragraph 46, lines 13-17).

As per claim 3, Uhlig teaches the method of claim 1, wherein at least one of the memory protection bits is a read/write bit (Page 4, Paragraph 33, line 10).

As per claim 5, Uhlig discloses the method of claim 1 wherein the host machine application is a host machine operating system that executes within the host machine context (Page 2, Paragraph 14, Lines 3-6) and the virtual machine application is a virtual machine operating system that executes within the virtual machine context (Page 2, Paragraph 17, lines 5-7).

As per claims 8-10, 12, 15-17 and 19, the claims for a system and computer readable media based on the above method are rejected for the same reason as claims 1-3 and 5 above.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

13. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

14. Claims 7, 14 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uhlig as applied to claim 1 above, and further in view of Neiger et al. (U.S. Patent 6,907,600).

As per claim 7, Uhlig discloses the method of claim 1. Uhlig does not teach the method of claim 1 further comprising:

updating the TLB with new entries when a virtual machine TLB miss occurs or a host machine TLB miss occurs

Neiger teaches updating the TLB with new entries when a virtual machine TLB miss occurs or a host machine TLB miss occurs (Col 4, lines 37-40). Neiger and Uhlig are analogous art because they are from the same field of endeavor, namely memory

access in a TLB. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have means for updating the TLB with new entries when a miss occurs. The motivation for doing so is obvious; the purpose of the TLB is to store the most recently accessed addresses and thus the TLB must be constantly up to date. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Neiger and Uhlig, since updating the TLB with new entries when a miss occurs would keep the TLB up to date with the most recently accessed data..

As per claims 14 and 21, the claims for a system and computer readable media based on the method above are rejected for the same reason as claim 7 above.

Allowable Subject Matter

15. Claims 4, 11 and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

16. The following is text cited from 37 CFR 1.111(c): In amending in reply to a rejection of claims in an application or patent under reexamination, the applicant or patent owner must clearly point out the patentable novelty which he or she thinks the claims present in view of the state of the art disclosed by the references cited or the

objections made. The applicant or patent owner must also show how the amendments avoid such references or objections.

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonid Kravets whose telephone number is 571-272-2706. The examiner can normally be reached on M-F, 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Kim can be reached at (571)272-4182. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LK
Leonid Kravets
Patent Examiner
Art Unit 2189

July 28, 2005

BEHZAD JAMES PEIKARI
PRIMARY EXAMINER